

Studies in Computational Intelligence, Volume 317

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Preface

The 9th ACIS/IEEE International Conference on Computer Science and Information Science, held in Kaminoyama, Japan on August 18-20 is aimed at bringing together researchers and scientists, businessmen and entrepreneurs, teachers and students to discuss the numerous fields of computer science, and to share ideas and information in a meaningful way. This publication captures 18 of the conference's most promising papers, and we impatiently await the important contributions that we know these authors will bring to the field.

In chapter 1, Taewan Gu et al. propose a method of software reliability estimation based on IEEE Std. 1633 which is adaptive in the face of frequent changes to software requirements, and show why the adaptive approach is necessary when software requirements are changed frequently through a case study.

In chapter 2, Keisuke Matsuno et al. investigate the capacity of incremental learning in chaotic neural networks, varying both the refractory parameter and the learning parameter with network size. This approach is investigated through simulations, which find that capacity can be increased in greater than direct proportion to size.

In chapter 3, Hongwei Zeng and Huaikou Miao extend the classical labeled transition system models to make both abstraction and compositional reasoning applicable to deadlock detection for parallel composition of components, and propose a compositional abstraction refinement approach.

In chapter 4, Chong Shen and Wencai Du investigate the relationship between mobility modelling and data dissemination protocols in vehicular communication networks, improving upon the unrealistic mobility models in use while considering both micro and macro mobility characteristics, and developing more effective data dissemination protocols. They demonstrate through simulation the necessity of adaptive protocols when mobility characteristics are heterogeneous, and establish other effects of mobility model on data dissemination.

In chapter 5, Jing Sun et al. explore the concept and implementation of a Barcode Network, a hybrid of barcode technology and the Electronic Product Code (EPC) network, providing the advantages of unique identifiers for each individual inventory item as well as modern Internet functionality, combining the strengths

and the momentum of barcode schemes such as UPC and ISBN with the promises of EPC networks.

In chapter 6, Shaochun Xu and Wencai Du examine the effect of expertise on incremental software development, evaluating experimentally the ability of intermediate and expert programmers at design decision generation, test case generation, hypotheses generation when debugging the program, and actions at different Blooms taxonomy levels. They conclude that expert programmers spend more cog-native time at higher levels of Bloom's taxonomy, and intermediates, more at lower levels.

In chapter 7, Hiroyuki Kitada et al. analyze packet streams from peer-to-peer applications, identifying the flow characteristics in two popular P2P video services. The distributions of flow interarrival and flow volume are identified, and an analysis of network load is made.

In chapter 8, Dauw-Song Zhu et al. integrate user customization ability of web pages and customer playfulness as factors in analysis of use intention of online stores, and through analysis of survey results find that customization does not have a positive impact on usage intention, and that web quality and customization both positively influence user playfulness, and playfulness does have a positive relationship with usage intention.

In chapter 9, Miguel Miranda et al. describe a multi-agent system implementing HL7, an international healthcare system interoperability standard, and its integration in several healthcare systems. The log registry and extracted statistics of several years of interoperation in one institution are used to analyze the development of prediction models to imbue intelligent behavior in the existing platform.

In chapter 10, Feng Shen and Hai Jiang propose a distributed file management system with a focus on scalability, reliability and security, using a scaled Shamir's secret sharing scheme to accomplish these goals at a data level, and distributed file system infrastructure to address them at a system level.

In chapter 11, Dongjoo Lee et al. propose an improvement to personalized recommendation systems used in online stores and other domains. They show how to obtain customers implicit preferences from event logs and present a strategy to abstract preference context information, thus inferring information which can be used by well-known recommendation methods such as Collaborative Filtering. They further test their methods on music listening data and demonstrate an improvement in quality.

In chapter 12, Yasuyuki Ichihashi et al. present their success in electroholography, creating a computer-generated hologram in realtime. They demonstrated the application of high-performance computers and achieving 1frame per second for a

million-point 3D image, and used a multi-GPU system to achieve 20 fps at 1,500 points.

In chapter 13, Naoya Fujioka et al. propose a system for helping students study CPR. The system is based on a game utilizing a pressure sensor, and can be performed at home or in educational systems. Survey results and experimental evaluation indicated that the system revealed the advantages and utility of the system.

In chapter 14, Masaharu Hirota et al. propose a clustering method in order to effectively present image search results on the Web, using social tags, low-level image features, and photo metadata. They applied constrained agglomerative clustering method with must-link constraints, achieving better clustering results by using multiple similarity metrics. Experimental performance of the method is presented.

In chapter 15, Koki Murakata and Tokuro Matsuo propose a new evaluation mechanism for online commerce to decrease the information incompleteness and asymmetry using multi-attribute evaluation, incentivizing sellers to disclose many evaluation attributes to buyers by automatically determining a seller's incentive to produce synthetic ratings.

In chapter 16, Christian Fischer et al. consider the state of research on Enterprise Architecture design principles and analyze state-of-the-art EA principle definitions, working towards a consolidated, clear consensus on their definition. They identify seven common main components of definitions.

In chapter 17, Haeng-Kon Kim and Roger Y. Lee analyze the coverage provided by individual test cases in component based testing systems in order to determine which test cases are redundant and provide a minimal set of test cases, reducing the overhead of testing without compromising coverage.

In chapter 18, Matt Brooks et al. present the results of a usability study on university portal software, performing two tiers of analysis on the data. Improvements to the university portal and results pertaining to the level of experience of users are presented.

It is our sincere hope that this volume provides stimulation and inspiration, and that it will be used as a foundation for works to come.

August 2010

Guest Editors
Tokuro Matsuo
Naohiro Ishii

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